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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,449	07/22/2003	Daniel N. Ozick	ISR-010CON	5593

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EXAMINER

HE, AMY

ART UNIT PAPER NUMBER

2858

DATE MAILED: 08/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/624,449

Applicant(s)

OZICK, DANIEL N.

Examiner

Amy He

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16, 18-34, 36 and 38-42 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 42 is/are allowed.
- 6) ☒ Claim(s) 1-10, 16, 18, 20-30, 36, 38 and 40-42 is/are rejected.
- 7) ☒ Claim(s) 11-14, 19, 31-34 and 39 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/22/2003.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-9, 16, 20-29, 36 and 40-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Miller et al. (U. S. Patent No. 5, 933, 102).

Referring to claims 1-2, 4 and 40-41, Miller discloses a capacitive sensing system (in Figures 1 and 4) comprising:

a microcontroller (12 or 180), operable to receive electrical power from an electrical power source, and having at least one digital logic input/output pin (P1-P8 in Figure 1 or pins in Figure 4) capable of functioning in both an INPUT mode and an OUTPUT mode (column 5, lines 21-43; column 8, lines 5-7);

a conductive sense element (E1-E8; column 9, line 17 and 23) in electrical communication with the I/O pin, and

a resistance element (R1-R8) in electrical communication with the conductive sense element to form an electrical pathway from the conductive sense element to an electrical discharge point;

wherein the microcontroller is further operable to:

at a first time, charge/discharge the conductive sense element by causing a selected voltage to be placed on the I/O pin by setting the I/O pin to the OUTPUT

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mode in the high/low state (logic 1 or 0); at a second time, cease placing the selected voltage on the I/O pin; thereafter, set the I/O pin to the INPUT mode, which causes the conductive sense element to discharge/charge through the resistance element, and measure voltage at the I/O pin, the voltage at the I/O pin being representative of voltage at the sense element(column 5, lines 21-59; column 8, lines 61-64; column 10, lines 3-42; column 11 line 64--column 12, lines 1-3; column 13, lines 42-52; claims 1 and 19); and

measure a parametric value (transition iteration number, column 14, line 55, representative of a time/discharge pulses) required for voltage at the conductive sense element to decline/increase to a value below/above a threshold value (transition from logic one to logic zero, or from logic zero to logic one, see tables in column 13-14), the parametric value being representative of an effective capacitance (abstract) formed by at least the conductive sense element (E1-E8) and a first object (an operator or a physical object in close proximity, column 10, lines 1-2) that may be in contact or proximity with the conductive sense element, whereby the parametric value is representative of contact or proximity between the sense element and the first object.

Referring to claims 3, Miller discloses that the discharge time is measured using a clock element inherent to the microcontroller (clock of microcontroller 12 or ASIC 180).

Referring to claims 5-9, Miller discloses signal processing including resolution enhancement (column 9, lines 44-45; column 11, lines 65-67), automatic calibration and

continuous calibration (using the microcontroller 12 or ASIC 180) and noise reduction (Figure 5; column 16, lines 9-17).

Referring to claims 16, Miller discloses receiving separate signal from a plurality of sense element (E1-E8), each in electrical communication with the I/O pin (P1-P8).

Referring to claims 20, Miller discloses that the sense element is a conductive plate/ink (column 9, line 17 and 23).

Referring to claims 21-29 and 36, they are the method claims corresponding to the rejected system claims 1-9 and 16. They are rejected for the same reasons as stated above for the rejection of the system claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al. (U. S. Patent No. 5, 933, 102), in view of Beni et al. (U.S. Patent No. 4, 588, 348).

Referring to claims 10 and 30, Miller discloses performing digital signal processing on signals derived from the conductive sense element. Miller does not specifically disclose that the signal processing includes pattern recognition to detect one

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or more selected patterns of contact or proximity between the first object and the conductive sense element. However, pattern recognition or tactile sensing for detecting patterns of touching is known in the art as evidenced in Beni (column 1, lines 15-25; abstract). A person of ordinary skill in the art would find it obvious at the time of the invention to modify Miller to use pattern recognition or tactile sensing, as taught by Beni, to improve the manipulative capacity of the capacitive sensing system.

3. Claims 18 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al. (U. S. Patent No. 5, 933, 102), in view of Nichols et al. (U.S. Patent No. 5, 319, 569).

Referring to claims 18 and 38, Miller discloses that the signal processing includes resolution enhancement by summing multiple measurements (column 16, line 14). Miller does not specifically disclose averaging across the multiple timing-based measurements. However, averaging multiple timing-based measurements is well known in the art as evidenced in Nichols et al. (U.S. Patent No. 5, 319, 569) (see abstract; column 1-column 2). A person of ordinary skill in the art would find it obvious at the time the invention was made to modify Miller to disclose taking multiple timing based measurements of the parametric value and then averaging across the measurements, as taught by Nichols, in order to obtain a more accurate measurement result of the parametric value.

Allowable Subject Matter

4. Claims 11-14, 19, 31-34 and 39 are objected to as being dependent upon a rejected base claim (claims 1 and 21), but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claim 42 is allowed.

6. The following is a statement of reasons for the indication of allowable subject matter:

Claim 42 is allowable because none of the prior art discloses a non-contact object identification system comprising a microcontroller that signals the identification of a binary-coded object when an object having a corresponding binary-coded identification pattern is aligned with the binary-coded identification pattern formed by the conductive sense element, and the alignment is detected by the conductive sense element, and in the combination as claimed.


Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (571) 272-2230. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on 703-308-0750. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AH 
August 24, 2004


ANJAN DEB
PRIMARY EXAMINER